



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
16.04.2014 Bulletin 2014/16

(51) Int Cl.:
E21B 43/04 ^(2006.01) **E21B 34/00** ^(2006.01)

(43) Date of publication A2:
29.02.2012 Bulletin 2012/09

(21) Application number: **11250738.9**

(22) Date of filing: **24.08.2011**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(30) Priority: **25.08.2010 US 862833**

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(54) **Self-orienting crossover tool**

(57) A crossover tool has an internal sleeve rotatably positioned within an external sleeve, and each of the sleeves has ports alignable with ports on the other sleeve. After deploying the crossover tool downhole and diverting fluid flow below the tool, fluid flow communicated into the internal sleeve tends to rotate it relative to the external sleeve until the ports are substantially aligned so that wear to the components is substantially reduced. The ports themselves may facilitate the rotation and alignment. For example, ports on the internal sleeve may produce tangentially exiting fluid flow. Alternatively, an additional outlet may be defined in the internal sleeve and eccentrically located to its rotation axis. Furthermore, an internal sleeve or insert may partially block fluid flow through the ports to allow greater fluid flow through the additional outlet to enhance rotation of the internal sleeve.

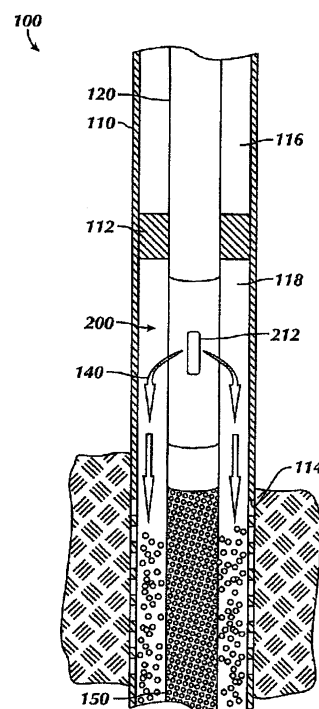


FIG. 1



EUROPEAN SEARCH REPORT

Application Number
EP 11 25 0738

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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
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| | | | TECHNICAL FIELDS SEARCHED (IPC) |
| | | | E21B |
| The present search report has been drawn up for all claims | | | |
| Place of search Munich | | Date of completion of the search 7 March 2014 | Examiner Ott, Stéphane |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p> | | | |

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EPO FORM 1503 03.92 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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